

LESSON
6.2**Practice B**

For use with pages 420–427

Simplify the expression using the properties of radicals and rational exponents.

1. $7^{1/3} \cdot 7^{4/3}$
2. $\frac{4^{2/3}}{4^{1/3}}$
3. $(6^{2/3})^{3/4}$
4. $5^{1/4} \cdot 3^{1/4}$
5. $\sqrt[4]{2} \cdot \sqrt[4]{8}$
6. $\frac{\sqrt[4]{192}}{\sqrt[4]{6}}$
7. $\frac{11}{\sqrt[4]{11}}$
8. $\sqrt[3]{7} \cdot \sqrt[3]{49}$
9. $(3^{3/2})^2$
10. $\left(\frac{54}{64}\right)^{1/3}$
11. $\frac{\sqrt[4]{32}}{\sqrt[4]{2}}$
12. $\frac{\sqrt[5]{5}}{\sqrt[5]{27}}$

Simplify the expression. Assume all variables are positive.

13. $x^{5/3} \cdot x^{4/3}$
14. $\sqrt{x^{2/5}}$
15. $(x^{1/2})^{2/7}$
16. $\left(\frac{x^2}{27}\right)^{1/3}$
17. $\sqrt[3]{16x^4}$
18. $(x^{-3})^{2/5}$
19. $\frac{x^{7/5}}{x^{4/5}}$
20. $\frac{\sqrt[3]{64x^3y}}{4x^{-3}y}$
21. $x^5 \cdot x^{\sqrt{3}}$
22. $(x^{\sqrt{2}})^{3\sqrt{2}}$
23. $\frac{x^{4\sqrt{3}}}{2x^{2\sqrt{3}}}$
24. $(\sqrt[3]{x^4} \cdot \sqrt{x^5})^{-2}$

Perform the indicated operation. Assume all variables are positive.

25. $6\sqrt[3]{5} + 2\sqrt[3]{5}$
26. $5\sqrt{5} - \sqrt{45}$
27. $2\sqrt[3]{27} - 3\sqrt[3]{48}$
28. $2\sqrt{x} + 7\sqrt{x}$
29. $3(x^{1/2}y^3)^2 - (x^3y^{18})^{1/3}$
30. $4x^{\sqrt{3}} + x^{\sqrt{3}}$

Write the expression in simplest form. Assume all variables are positive.

31. $\sqrt[4]{3x^7y^9z^3}$
32. $\sqrt{x^3y^4z} \cdot \sqrt{xyz^4}$
33. $\sqrt[3]{\frac{81x^2y^3}{8xy^4z}}$

34. **Circumference** The equatorial circumference of Earth is 4.01×10^4 kilometers. One kilometer is equivalent to 3.94×10^4 inches. What is the equatorial circumference of Earth in inches?

35. **Swimming Pool** A wooden deck and a circular swimming pool cover an area of 514.16 square feet of the lawn. The rectangular deck is 20 feet wide and 10 feet long. What is the radius of the pool?

LESSON
6.2
Practice C

For use with pages 420–427.

Simplify the expression using the properties of radicals and rational exponents.

1. $(4^{2/3} \cdot 5^{3/4})^3$

2. $(3^{3/2} \cdot 3^3)^{1/3}$

3. $((7^{2/3})^{3/5})^3$

4. $(\frac{5^2}{5^{7/2}})^{-1/3}$

5. $(\frac{16^{1/3}}{2^{1/3}})^2$

6. $\sqrt[4]{\sqrt[3]{\sqrt{6}}}$

7. $\frac{\sqrt{32}}{\sqrt{72}}$

8. $\sqrt[5]{(3^3)^2 \cdot (3^4)^2}$

9. $\frac{\sqrt{\frac{5}{7}} \cdot \sqrt{\frac{4}{5}}}{\sqrt{10}}$

Simplify the expression. Assume all variables are positive.

10. $x^{\sqrt{3}} \cdot x^{\sqrt{12}}$

11. $\sqrt[4]{\frac{x^{17}}{y^8}}$

12. $(\frac{x^{1/4}}{x^{1/2}})^{-1}$

13. $\frac{x^{4/3}y^{7/6}}{xy}$

14. $(\frac{2x^3y^{2/3}}{x^{5/3}y^{3/5}z})^3$

15. $(\frac{xy^2}{3y^{4/3}z^{1/2}})^{-1/2}$

16. $(\frac{(12xz^2)^{1/2}}{(3y^3z)^{1/2}})^{-3}$

17. $\sqrt[4]{(3x^3)^3(3x^2)^5}$

18. $\sqrt[3]{\sqrt{x}} \cdot \sqrt[4]{\sqrt{x}}$

Perform the indicated operation. Assume all variables are positive.

19. $\sqrt{(10\sqrt{3} - 6\sqrt{3})}$

20. $2x\sqrt[3]{x^4yz^5} + \sqrt[3]{x^7yz^5}$

21. $\sqrt[4]{16x} - \sqrt[4]{x}$

22. $\sqrt[3]{\frac{2x}{5}} + \sqrt{\frac{x}{25}}$

23. $\sqrt[3]{8x} + \sqrt[6]{x^2} - \sqrt[9]{x^3}$

24. $\sqrt{x}yz^2\sqrt{9x^3z}\sqrt{x} + x\sqrt{yz}\sqrt{x^3z^2}$

25. Circumference The equatorial circumference of the Moon is 1.09×10^4 kilometers. One kilometer is equivalent to 3.94×10^4 inches. What is the equatorial circumference of the Moon in inches?

26. Bowling Ball A bowling ball is submerged in a tub of water. As a result, a total of 333 cubic inches of water is displaced. Use the formula for the volume of a sphere to find the radius of the bowling ball.